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COOKING IN THE ELEMENTARY SCHOOL

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There are few exceptions in the answers of little children to the question, "Do you enjoy your cooking?" Certain it is this activity affords to a majority of children a pleasurable experience, hence they admit they have an interest in it or "like it." To analyze this interest we find it need not arise alone (especially with children above Grade II) from a feeling of anticipation and accomplishment, but, under favorable conditions, it comes in some measure from mental growth, or is an intellectual interest.

This opportunity for the development of an intellectual interest is often neglected by teachers of cooking in the Elementary School. We flatter ourselves into believing that to arouse the social instincts and promote skill is the aim and end of the work. Surely this is something, but the growth and further acceptance of this branch as a school subject must come from this broader view; a view which includes not only the children and special teacher but the class teacher as well, and can only be carried out where such co-operation is possible. The object of this paper is to give an illustration of work from this point of view.

The work of Grade III centers about trade and trade conditions. The children discuss the beginnings of exploration and travel and develop a feeling for the growth and expansion of industrial and social life. It is from this thought that the following piece of work found its place.

The children were bartering and exchanging things of one section of the country for products of another: food-stuffs native to a moderate climate, for food-stuffs of a warm climate, as Illinois and California. Grapes were offered from California many times in trade, when one small child objected and said, "I can't take any more grapes, I just can't. I have so many now I can't sell them all." The salesman immediately saw the difficulty and offered raisins. "Yes. They'll keep and if I don't sell them all now it don't matter." Raisins were then discussed with the children. "What are they?" "Where do they come from?" "How do they grow?" "What kind of grapes make a good raisin?" Thus the children were eager to learn more, and it was planned to make raisins, and find answers to many of these questions.

Several varieties of grapes were obtained suitable and unsuitable for raisin making, and suggestions were given for their drying. The Concord, Cornican, and Tokay grapes were carefully weighed and placed in various places to dry. Some were hung in the sunshine out-of-doors, some were placed on the radiator, and others were put in a sunny window. Observations were made from time to time. All the grapes were noted to shrink and shrivel with a decrease of size and weight. Those on the radiator dried most quickly but did not produce as fine a product as the sun-dried fruit. The grapes in the window lost weight according to the following record:

October 18, 4 oz of fruit.
October 21, 3½ oz. of fruit.
October 25, 2 oz. of fruit.
October 31, 1½ oz. of fruit.
November 4, 1 oz. of fruit.

The grapes on November 4 were compared with store raisins and determined as "finished." From a comparison of the varieties the Concord were declared unfit for raisin making; the Tokay fair; and the Cornican good. (Could the White Muscat raisin grape of California be procured, still better results could be obtained.)

The children then wished to make an individual bunch of raisins. Parts were read or told them concerning "Raisin Curing" in *California Fruits*, and the chapter on "Grapes" in Carpenter's *How the World Is Fed.* This gave a clear picture of the real operation. Each child then weighed one-quarter of a pound of Cornican grapes, placed them on an individual rack made for that purpose, and set them in the sunshine. On each box was marked the date of starting and the weight. Each week additions were made to the record as new weighings were made.

In the reading it was found that the Spaniards make raisins by dipping grapes in a boiling solution of lye (one pound of lye being used to three gallons of water). This the class imitated by hanging the grapes on a long stick and dipping them quickly into the boiling solution and then into clear cold water. They found that the grapes shrank and that the flesh was cured more rapidly by this process; but the product was not comparable with the sun-dried fruit.

Thus far the exercise interpreted to the child a simple "product-making" process, an illustration of value, but by no means the highest value; nor did the work stop at this point. The children themselves were stimulated, during the manufacture to further questioning. To answer these questions lessons in science and mathematics were necessary.

Previous to this work the class had made grape juice, and as the raisins dried the children remarked, "All the grape juice is drying up, the raisins won't be any good." "But raisins are good, I think," said John; "maybe the good in the juice don't get out." So the class set about to find what "got away" or evaporated. Grape juice was again tasted and examined. Cloths were then moistened in it and dried by the children. "What had dried out?" "What remained?" Grapes were also boiled and the vapor caught on cold glass. Grape juice was distilled, and the distillate and residue tasted. One child suggested a grape be dried under a glass case and see if juice or water came out as the drying went on. The experiments were convincing that water alone evaporated and all the goodness of the grape remained. "It is the same as drying your hands in the sunshine," said one small boy, "the hands do not get away, just the water on them."

Then another question. "Why were the grapes so long in drying?" To meet this, four grapes were placed in a row, three of equal size and one very small one. The first grape had the skin entirely removed, the second half peeled, and the last two were intact. Observations made from day to day indicated that the skin had a great deal to do with the rate of drying, as had also the size of the fruit. This gave a new notion concerning the covering of the fruit—a point which will later be amplified in the lessons on "Parts of the Fruit."

Quantitative work on evaporation then followed to enforce and clear the ideas: (*a*) that surface exposure influences evaporation; (*b*) atmospheric conditions influence evaporation. Equal quantities of water were placed in deep, shallow, covered and uncovered vessels, and placed under the same conditions to observe the rate of evaporation. Equal quantities of water were placed in dishes of same size and shape and placed under different conditions of exposure. The comparative rate of evaporation was carefully observed and conclusions were reached for determining favorable and unfavorable conditions for evaporation. Application followed in discussing good days for drying clothes, and when to use and when not to use the cover on the cooking-pot.

No less important was the mathematics for carrying on this interest. The scales must be understood, the tables of ounces and pounds, pints, quarts, and gallons learned, the multiplication table of 3's and 4's drilled upon, and simple problems in addition and subtraction practiced. The records kept from time to time (as record of drying before given) gave basis for concrete problems as: Find the loss of water for the first four days; Find entire loss; Find the proportion of raisins to grapes; Find the necessary amount of grapes to make one pound of raisins; What is the cost of one pound of raisins if one pound of grapes cost 8c; Compare with cost at store; What is the amount of raisins produced from one of the large California trays of twenty-four pounds of grapes? Also each child had his individual problems from the record of his special tray.

The making of the tray was also a neat problem. Each had a one-quarter pound bunch of grapes for drying. Three or four of these bunches were measured and it was found a box 3×5 on the bottom was suitable. It was then for the children to determine the size of the paper to cut for the entire box with a depth of one inch and the size as before mentioned.

Without the co-operation of the class teacher, such work is impracticable, even if possible. The greater part of the mathematics and science of the grade must be carried on by the class teacher, and she needs this concrete work as a basis for such lessons. Also a large part of the cooking period must be laboratory work, but of such a nature that it need not stop here. It is high time for schools, where cooking is taught, to recognize this broader value and allow its worth to be estimated in terms broader than "a favorable cup of tea" or "a suitable sandwich."